

Translation

PATENT COOPERATION TREATY

PCT/DE2003/001378



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2002P06263WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DE2003/001378	International filing date (<i>day/month/year</i>) 29 April 2003 (29.04.2003)	Priority date (<i>day/month/year</i>) 15 May 2002 (15.05.2002)
International Patent Classification (IPC) or national classification and IPC H01F 6/04		
Applicant SIEMENS AKTIENGESELLSCHAFT		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 01 October 2003 (01.10.2003)	Date of completion of this report 26 July 2004 (26.07.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/DE2003/001378

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages _____ 1-10 _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____ 1-9 _____, filed with the letter of _____ 24 June 2004 (24.06.2004)
- ☒ the drawings:
pages _____ 1/2-2/2 _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/DE 03/01378

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1 - 9	YES
	Claims		NO
Inventive step (IS)	Claims	1 - 9	YES
	Claims		NO
Industrial applicability (IA)	Claims	1 - 9	YES
	Claims		NO

2. Citations and explanations

Technical field: The application relates to the cooling of superconductive magnet systems.

PCT Article 19(2): According to the examination report, a new independent claim 1 was drafted from the features of the original claims 1 and 6.

Prior art: The preamble of main claim 1 can be found in document US-A-4 726 199 (D1).

Disadvantage: Depending on the distance between the cold head and the object to be cooled, the large cross-sections required for good thermal coupling lead to a considerable increase in the size of the cold mass, which results in considerable expenditure.

Problem: Reducing the cost of cooling a superconductive coil.

Solution: A device having the features of claim 1.

Evaluation: By using a single-pipe thermosiphon, a corresponding pipe is characterized in that it is closed at one end and in that the same component is used both to

feed the cold coolant to the heat source and to return the heated coolant. In this way, the required amount of circulating cryogenic coolant is reduced in comparison with a double-pipe thermosiphon (according to D1).

The reduction in the amount of coolant liquid - by using pipes with comparatively small diameters - is a substantial cost advantage. Neither document D1 nor document D2 (PAJ: JP 06342721 (Tokin Co)) discloses returning the heated coolant via the same part of a pipe as it is fed.

General Observations

Although claims 1-9 satisfy the requirements of PCT Article 33(2) to (4) with respect to the searched prior art, amendments are required to remedy the following defects:

- Contrary to PCT Rule 5.1(a)(ii), the description does not cite document D1 or indicate the relevant prior art disclosed therein.
- The description is not consistent with the claims (PCT Rule 5.1(a)(iii)).
- In claim 1, reference sign "9" should be replaced by "q".